Notebook, N-87-12-08.2

This notebook covers the period December 1887-May 1888. Most of the book consists of tests made on Lalande batteries by an unidentified experimenter. At the beginning of the book are 10 pages of notes by Edison, dated December 8-10, containing instructions for chemical experiments on lamp filaments, phonograph cylinders, magnetic iron ores, and other materials. Following Edison's notes are 3 pages by Arthur E. Kennelly, possibly listing laboratory projects involving technologies such as the telephone and the pyromagnetic generator. The front cover is labeled "Lalande Battery." The spine is labeled "029.4." The pages are unnumbered, and the book has been used in both directions. Approximately 150 pages have been used.

The Lalande battery test notes have not been filmed.

Orange N J Dec 8 1887.

Take say 25 lbs Hard Cubian Asphalt, and seperate all the different Hydrocarbons etc as far as possible by means of Solvents.
It will be necessary to first dissolve everything out by say hot turpentine then successively treat the residue with, Bisulphide Carbon, Benzol, Ether, Chloroform, Naptha, Toluol, Alcohol, and other probable Solvents - after you can go no farther - distill off the Solvents so the asphalt material has a tar like consistency - Be sure all the ash is out of the Turpentine portion, now after distilling the turpentine off act on the residue with all the solvents

that were used on the residue -
using for the first the solvent
which is least likely to dissolve
a great part of it - by thus
manipulating the various solvents
you will be enabled probably to
separate the Crude asphalt into
several distinct hydrocarbons -
put each in a bottle after it
has been dried & label the
bottle with the process etc so we
may be able to duplicate it also
give bottle a number & describe
everything fully in note book —

Orange Dec 10 1887

Destructively distil the following substances down to a point just short of Carbonization so that the residium can be taken out of the retort, powdered and acted on by all the Solvents just as the Asphalt in previous page — The distillation should be carried ~~to say~~ 600 or 700 fahr but not continued long enough to wholly reduce mass to Charcoal but always run to blackness — Seperate the residium in as many definite parts as possible, bottle + label + keep accurate records as to process weights etc so a reproduction of the Experiment can at any time be made.

Gelatin 4 lb — Asphalt 10 lb Hard Cubian,
Coal Tar 10 lb — Wood Pitch 10 lb Syrian,
Asphalt 10 lb — Bituminous Coal 10 lb
~~Asp~~ Cane Sugar 10 lb — Glucose 10 lb — Dextrin

10 lb 5 lb
Glycerine – Tartaric acid –
5 lb 3 lb
Gum Sarac, Gum Amber,
3 lb 1 lb
Gum Tragacanth, Aniline Red
1 lb 5 lb
Aniline Oil Crude Anthracene
10 lb 2 lb
Petroleum Pitch – Albumen from
Eggs – Tar from passing Chlorine
through 2 lb 5 lb
Aniline Oil – Citric acid,
3 lb 5 lb
Sawdust of Coxcomb – Starch
3 lb 5 lb 5 lb
Shellac, Gum Arabic Castor Oil

~~Pyrene carbonized by heating with Sulphur~~

Orange Dec 10/87 –

Heat with Sulphuric acid the following to obtain black carbonaceous residue which should be well washed & freed from acid & filtered with full records

Anthracene, Pyrene, Alizarin, Rosin, Turpentine, Naphthalin,

In the separation of Magnetite from
The Crystals of phosphate of lime
in Iron ores the necessity arises of
powdering the ~~ore~~ ore - in the form
of powder the ore cannot be used
it is necessary to get some cheap
binding material to fasten it together
in lumps so it can be thrown in the
Blast furnace & hold together
there until the reduction takes
place; Lime can be used but is
this requires a flux it is essential
to add something to the lime,
say Clay, Silica - etc. Try various
binders - even Coal tar pitch
clay & Lime could be used

A black deposit forms on the inner sides of Electric Lamps –
I want an analysis (accurate) quantatively made of this, the black from say 1000 globes can be collected by breaking off the tip & allowing warm (hydrochloric acid) to enter, this seems to loosen the films & they can easily be collected –
You might make some qualitative test with different reagents on the films which on the bulb by pouring in the reagent heating etc –

~~Take 20 lbs Hardest paraffine & distil of until but 5 lbs left = I want to get very hard paraffine -~~

Make 1 oz of paracyanide Silver in Lump form if possible - it has a metallic appearance, if impossible get it in Lump Keep in powder bottle,

Make 2 oz paracyanide Silver Amalgamated with mercury it makes a hard crystalline amalgam

Extract by any known means all the hydrocarbons possible from 5 lbs Common Lampblack put in bottle,

Make 1 lb Metallic Cerium by the Electrolytic method. ask me for the Cerium material

Make 1 oz peroxide of hydrogen by Ozone — ordinary doesnt make the same quality of peroxide as Ozone —

I desire to get a conducting surface on the wax phonogram — dissolve phosphorus in small amount of Bisulphide Carbon, or Ether, dip cylinder in it. then after the instant solvent has evaporated dip in Nitrate Silver — try variations this Experiment

using one pole of platinum wire, say ·040 diam. and the other a wire which has a great affinity for the element combined with Carbon by the depositing of Carbon on the platinum by regular electrolysis, arrange the tube containing the electrodes so you can heat in Sand Bath if necessary – also arrange to lay experiment in Sealed tubes, use 100. 200 & 1200 volts of liquid as poor conductor – The conductivity of all liquids increases by heat. Use alone & in mixtures with themselves Bisulphide Carbon, Bi– ter & tetra Chloride Carbon – Iodide Carbon, all the Iodides of Carbon all the Bromides of Carbon. Melted Naphthalin, pyrene, pure melted Anthracene

Melted Hard Cubrian asphalt,
Turpentine, Aniline Oil —

Melted. Monosulphide Carbon — Melted.

Melt — Iodoform ~~& others~~ young
~~thumb~~ off put Electrodes very close together if
you find resistance high ...
using 1200 volts have high resistance
inserted & also a safety fuse ...

CuS_4

(1) [illegible]

(2) [illegible]

(3) Telephone

(4) [illegible]

(5) Pyrogenator

(6) [illegible]

(7) [illegible]

Cu	8
Fe	1

The current passing thro a [illegible] coordinates generates vibe

8)

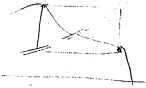
Arc

9)

10)

Iron core

11)

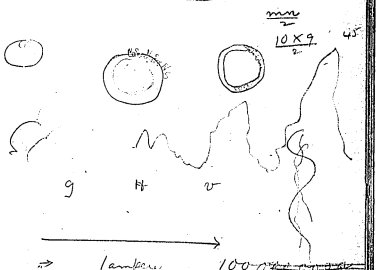


12)

Long iron wire

13)

Tellurium



1 ampere 1,000

13

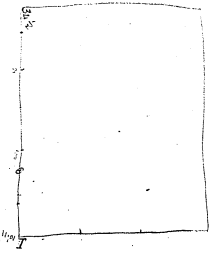
$\frac{33}{20} \times 32$

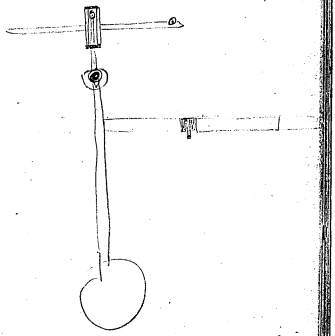
$\frac{33}{20}$

$\frac{96}{66}$

$\frac{1056}{}$

16





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<10	0·1	1·2	2·5	2·8	3·11	4·2	24·2	5·1			
<10	1·2	2·4	3·5	4·2	4·8	16·2"	4·11				
<10	1·11	3·8	4·11	5·8	6·8	10·3					

305

10·11 10·6

9·34
7·41
17·30
8·65
15·00
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